

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 12

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte TAKESHI AKIMOTO

Appeal No. 1997-4423
Application No. 08/355,009

ON BRIEF

Before CALVERT, ABRAMS, and NASE, ***Administrative Patent Judges***.

ABRAMS, ***Administrative Patent Judge***.

DECISION ON APPEAL

This is an appeal from the decision of the examiner finally rejecting claims 1 and 3. Claim 2 has been canceled, and the examiner has indicated that claims 4-6 contain allowable subject matter.

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The appellant's invention is directed to a microwave plasma processing apparatus. The claims before us on appeal have been reproduced in an appendix to the Brief.

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THE REFERENCES

The references relied upon by the examiner to support the final rejection are:

Bloom 1971	3,573,190	Mar. 30,
Doehler et al. 16, 1990 (Doehler)	4,893,584	Jan.
Japanese Patent Publication 1992 (Kenichi)	4-84426 ¹	Mar. 17,

The admitted prior art set forth in the appellant's application in Figures 1A-1C and on pages 4 and 5 of the specification.

THE REJECTION

Claims 1 and 3 stand rejected under 35 U.S.C. § 103 as being unpatentable over the admitted prior art in view of Doehler, Bloom and Kenichi.

Rather than attempt to reiterate the examiner's full commentary with regard to the above-noted rejection and the conflicting viewpoints advanced by the examiner and the appellant regarding it, we make reference to the Examiner's

¹Our understanding of this reference has been acquired from a PTO translation, a copy of which is enclosed.

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Answer (Paper No. 11) and the final rejection (Paper No. 6),
and to the Appellant's Brief (Paper No. 10).

OPINION

The guidance provided by our reviewing court with regard to the issue of evaluating the obviousness of the claimed subject matter in view of the prior art is as follows: The initial burden of establishing a basis for denying patentability to a claimed invention rests upon the examiner. See *In re Piasecki*, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984). The question under 35 U.S.C. § 103 is not merely what the references expressly teach but what they would have suggested to one of ordinary skill in the art at the time the invention was made. See *Merck & Co. v. Biocraft Labs., Inc.*, 874 F.2d 804, 807, 10 USPQ2d 1843, 1846 (Fed. Cir.), *cert. denied*, 493 U.S. 975 (1989) and *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). While there must be some suggestion or motivation for one of ordinary skill in the art to combine the teachings of references, it is not necessary that such be found within the four corners of the references themselves, for a conclusion of obviousness may be made from common knowledge and common sense of the person of ordinary skill in the art without any specific hint or

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suggestion in a particular reference. See *In re Bozek*, 416 F.2d 1385, 1390, 163 USPQ 545, 549 (CCPA 1969). Insofar as the references themselves are concerned, we are bound to consider the disclosure of each for what it fairly teaches one of ordinary skill in the art, including not only the specific teachings, but also the inferences which one of ordinary skill in the art would reasonably have been expected to draw therefrom. See *In re Boe*, 355 F.2d 961, 965, 148 USPQ 507, 510 (CCPA 1966) and *In re Preda*, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968).

The appellant's invention is directed to an improvement in microwave processing apparatus of the type having a housing defining a processing chamber and first and second flat electrodes in the processing chamber, wherein the second electrode has a plurality of radiation ports. There seems to be no dispute that all of the subject matter recited in independent claim 1 is disclosed in the admitted prior art except for the means for changing respective areas of the radiation ports, which means comprises, in the language of the claim,

a plurality of shutters; and

a plurality of operating members for independently controlling respective positions of said plurality of shutters from outside the processing chamber.

It is the examiner's view that the use of shutters to change the areas of radiation ports is taught by Doehler and controlling shutters from outside an operating chamber by Bloom and Kenichi, and that it would have been obvious to one of ordinary skill in the art to modify the apparatus disclosed in the admitted prior art by adding such structure.

Doehler is directed to a microwave energy apparatus the purpose of which is to deposit plasma uniformly over an area in a vessel. It is equipped with a microwave applicator means 40 that comprises in the embodiment shown in Figure 2 a plurality of apertures through which the microwave energy passes. According to this reference, the distribution of the microwave energy can be controlled by blocking and unblocking the apertures (column 8, lines 31-34) or by partially unblocking them (column 8, line 44) by means of shutters. Further in this regard, Figure 3 shows another embodiment in which a single shutter is used to vary the size of the an aperture. In view of these teachings, it is our opinion that

one of ordinary skill in the art would have found it obvious to add shutters to the apertures of the admitted prior art device, suggestion being found in the explicit teaching of Doehler that this allows the microwave energy to "be distributed in a desired, controllable manner" (column 8, line 32).

Still lacking from the apparatus of the admitted prior art as modified by the teachings of Doehler is the plurality of operating members for controlling the position of the shutters from outside of the processing chamber. Bloom discloses in column 2 a sputtering apparatus having a vacuum-tight chamber 10 which is provided with a shutter mechanism comprised of overlapping plates 38 and 40. By means of rotatable shafts 42 and 44, the position of the shutters can be controlled to shield or expose the substrate. The control shafts "are journaled through the wall 46 of the sputtering chamber" (lines 45-47) to communicate with a shutter control apparatus 48 that is located outside of the processing chamber. In Kenichi, the position of a microwave deflection correcting plate located within a processing apparatus is controlled from outside by a mechanism that passes through the

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wall to a control unit. From our perspective, in view of these teachings, one of ordinary skill in the art would have found it obvious to provide the modified apparatus of the admitted prior art with operating members passing through the wall of the chamber for independently controlling the position of the shutters from outside of the chamber. Suggestion for such is found in the self-evident advantages of providing this type of control, such as being able to change the positions of the shutters without the necessity to stop the process and gain access to the interior of the chamber, which would have been known to one of ordinary skill in the art, skill being presumed on the part of the artisan, rather than the lack thereof. See *In re Sovish*, 769 F.2d 738, 743, 226 USPQ 771, 774 (Fed. Cir. 1985).

It therefore is our conclusion that the combined teachings of the applied references establish a ***prima facie*** case of obviousness with regard to the subject matter recited in claim 1, and we will sustain the rejection. Inasmuch as the appellant has chosen not to separately argue the patentability of dependent claim 3 (Brief, page 8), it falls with claim 1, from which it depends. See ***In re Nielson***, 816 F.2d 1567, 1572, 2 USPQ2d 1525, 1528 (Fed. Cir. 1987).

We have carefully considered all of the arguments presented by the appellant. However, they have not persuaded us that the rejection of claims 1 and 3 should not be sustained. Our position with regard to the various arguments should be apparent from the rationale we have set forth above. In addition, we wish to point out that Bloom and Kenichi were cited for their teachings of controlling shutters in microwave apparatus by means of operating members located outside of the chambers, and the fact that distinctions can be made between the structure and the function of the claimed apparatus and those of these references does not detract from the suggestion

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these specific teachings would have provided to one of
ordinary skill in the art.

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SUMMARY

The rejection of claims 1 and 3 under 35 U.S.C. § 103 is sustained.

The decision of the examiner is affirmed.

No period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

IAN A. CALVERT)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
NEAL E. ABRAMS)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
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JEFFREY V. NASE)	
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Prepared: March 14, 2001